15 LIONVILLE LABORATORY INC.

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0408L267
SDG #	H2662
SAF #	F03-026
Date Received	8-5-04
# Samples	1
Matrix	Water
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

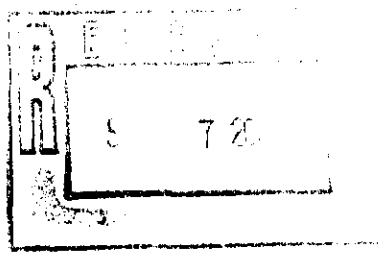
Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-026 H2662

DATE RECEIVED: 08/05/04 LVL LOT # :0408L267

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B191D7						
NITRATE NITRITE	001	W	04LN3047	08/03/04	08/30/04	08/30/04
NITRATE NITRITE	001 REP	W	04LN3047	08/03/04	08/30/04	08/30/04
NITRATE NITRITE	001 MS	W	04LN3047	08/03/04	08/30/04	08/30/04
AMMONIA	001	W	04LAM025	08/03/04	08/15/04	08/15/04
AMMONIA	001 REP	W	04LAM025	08/03/04	08/15/04	08/15/04
AMMONIA	001 MS	W	04LAM025	08/03/04	08/15/04	08/15/04
SULFIDE	001	W	04LSD041	08/03/04	08/08/04	08/08/04
SULFIDE	001 REP	W	04LSD041	08/03/04	08/08/04	08/08/04
SULFIDE	001 MS	W	04LSD041	08/03/04	08/08/04	08/08/04
LAB QC:						
NITRATE NITRITE	MB1	W	04LN3047	N/A	08/30/04	08/30/04
NITRATE NITRITE	MB1 BS	W	04LN3047	N/A	08/30/04	08/30/04
AMMONIA	MB1	W	04LAM025	N/A	08/15/04	08/15/04
AMMONIA	MB1 BS	W	04LAM025	N/A	08/15/04	08/15/04
AMMONIA	MB1 BSD	W	04LAM025	N/A	08/15/04	08/15/04
SULFIDE	MB1	W	04LSD041	N/A	08/08/04	08/08/04
SULFIDE	MB1 BS	W	04LSD041	N/A	08/08/04	08/08/04
SULFIDE	MB1 BSD	W	04LSD041	N/A	08/08/04	08/08/04



LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD F03-026 H2662
LVL#: 0408L267

W.O.#: 11343-606-001-9999-00
Date Received: 08-05-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks were within the method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia and Sulfide were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries for Nitrate Nitrite, Ammonia and Sulfide were within the 75-125% control limits.

8. The replicate analyses for Nitrate Nitrite, Ammonia and Sulfide were within the 20% RPD control limit.

9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/3/05
Date

ujp\i08-267

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
___Bromide ___Chloride ___Fluoride	___ 300.0	___ 9056	
___Nitrate ___Nitrite ___Phosphate	___ 300.0	___ 9056	
___Sulfate ___Formate ___Acetate ___Oxalate	___ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b)
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
·ride	___ 340.2		___ 4500-FC
ss, Calcium	___ 215.2		
·ardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
✓Nitrate-Nitrite ___Nitrate ___Nitrite	✓ 353.2		
Ammonia	✓ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	✓ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (__9014__9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	___ 160.4		
Other:		**Method:**	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/02/04

CLIENT: TNUHANFORD F03-026 H2662
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0408L267

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B191D7	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/02/04

CLIENT: TNUHANFORD F03-026 H2662 LVL LOT #: 0408L267
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LN3047-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	04LAM025-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	04LSD041-MB1	Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/02/04

CLIENT: TNUHANFORD F03-026 H2662 LVL LOT #: 0408L267

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B191D7	Nitrate Nitrite	0.54	0.02u	0.50	107.4	1.0
		Ammonia, as N	2.0	0.10u	2.0	101.5	1.0
		Sulfide	9.6	0.35	10.0	92.5	1.0
BLANK10	04LN3047-MB1	Nitrate Nitrite	0.51	0.02u	0.50	101.6	1.0
BLANK10	04LAM025-MB1	Ammonia, as N	2.0	0.10u	2.0	101.5	1.0
		Ammonia, as N MSD	2.0	0.10u	2.0	102.5	1.0
BLANK10	04LSD041-MB1	Sulfide	9.6	1.0 u	10.0	96.0	1.0
		Sulfide MSD	9.8	1.0 u	10.0	98.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 09/02/04

CLIENT: TNUHANFORD F03-026 H2662 LVL LOT #: 0408L267
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	04LAM025-MB1	Ammonia, as N	101.5	102.5	0.98
BLANK10	04LSD041-MB1	Sulfide	96.0	98.0	2.1

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/02/04

CLIENT: TNUHANFORD F03-026 H2662 LVL LOT #: 0408L267
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B191D7	Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0

Lionville Laboratory Use Only

04O8L267

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI LIONVILLE LABORATORY INC.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU Hanford F03-026

Est. Final Proj. Sampling Date

Project # 11843-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager Orlette Johnson

QC Spec   Del Std   TAT 30 Days

Date Rec'd 8.5.04   Date Due 9/4/04

			A	B
Refrigerator #			6	6
#/Type Container	Liquid		1p	1p
	Solid			
Volume	Liquid		1L	500
	Solid			
Preservatives			H_2SO_4	Zn Ac NaOH
ANALYSES REQUESTED	ORGANIC: VOA, BNA, Pest/PCB, Herb	INORG: Metal, CN	NO_2/NO_3 NH_3	Sulfide
Lionville Laboratory Use Only			IN3N2 IN4H3N	ISFD

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	NO_2/NO_3 NH_3	Sulfide
001	B191D7	✓	✓	W	8.3.04	0845	X	X

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Samples Properly Preserved Y or N
5) Received Within Holding Times Y or N

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. ___ °C

Relinquished by	Received by	Date	Time
FedEx	[signature] Smith	8.5.04	0930

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

FLUOR Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-026-015	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 7N	DATA TURNAROUND
Hughes/Wiberg/Pfister/Pope	MW Benecke	376-002	TRENT, SJ	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
200-LW-1; 216-S-20	200-LW-1/LW-2 Characterization - Water		F03-026		
ICE CHEST NO. GAP-03-009	**FIELD LOGBOOK NO.** HNF-N-356-1	**COA** 119143ES10	**METHOD OF SHIPMENT** Government Vehicle ① MAB 8/4/04		
SHIPPED TO ~~Laethe Services~~ IMJ 8-2-04 Becca	**OFFSITE PROPERTY NO.** ~~N/A~~ ① See PTR 13866		**BILL OF LADING/AIR BILL NO.** ~~N/A~~ ① See PTR 13866		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
~~N/A~~ ①
Samples did not originate in radiological controlled area. No total activity associated with sample/samples.

SPECIAL HANDLING AND/OR STORAGE
N/A

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	PRESERVATION		TYPE OF CONTAINER	NO. OF CONTAINER(S) / VOLUME	SAMPLE ANALYSIS	
				H2SO4 to pH <2/Cool 4C	ZnAc+NaOH to pH >9/Cool 4C			NO2/NO3 - 353.2; Ammonia - 350.3;	Sulfides - 9030;
B191D7	WATER	8/3/04	0845	X	X	P	1 / 1000mL		
						P	1 / 500mL		

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Thompson / David Tyree	8/3/04 0859	Dan Thompson / David Tyree FH-1 MO-026	8/3/04 0859
MO-026 FH-1	8/4/04 0745	M.H. Buchmiller M.G. Buchmiller	8/4/04 0745
M.H. Buchmiller M.G. Buchmiller	8/4/04 0745	Fed Ex	
Fed Ex	8.5.04 1030	W. Smith	8.5.04 1030

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 8-5-04

Purchase Order / Project# / (SAF#) SOW# / Release #: F03-026

LvLI Batch # : 0408L267 **Sample Custodian:** [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or (Shipped)	Carrier Fed Ex		Airbill# 7927 0038 3688	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received (cooled) or ambient?	Temp 1.3 °C		Cooler # GPP03-009	
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	☑ Yes	☐ No		
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A	
14.	QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	~~☑ No temp. >1.3°~~ ok 8-9-04		
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B